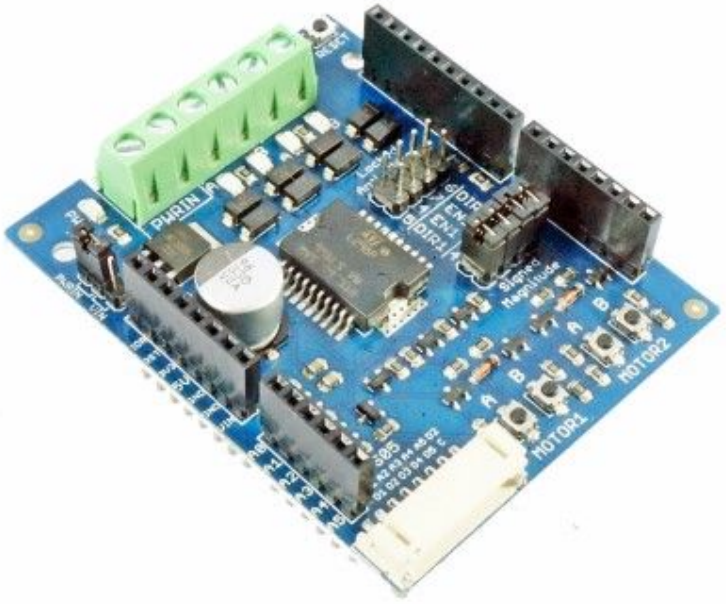
SHIELD-2AMOTOR
Cytron 2A Motor Driver Shield



User's Manual

V1.1

Feb 2015

INDEX

1. INTRODUCTION

SHIELD-2AMOTOR is an Arduino shield for controlling dual DC motor up to 2A for each channel. It is compatible with Arduino Uno, Arduino Leonardo, Arduino Mega, Arduino Due and possibly other pin compatible main boards. SHIELD-2AMOTOR uses L298P SMD IC and support for both signed magnitude and locked anti-phase. SHIELD-2AMOTOR shield has stackable side headers which allows for more Arduino shields to be stacked on top of it.

SHIELD-2AMOTOR come with this features:

- Bi-directional control for 2 brushed DC motor.
- Support motor voltage ranges from 5V to 26V.
- Maximum current up to 2A per channel.
- 3.3V and 5V logic level input.
- Stackable I/O header pin.
- Selectable pins for Signed Magnitude and Locked Anti-Phase.
- Test switch for both channel.
- External voltage polarity protector.

2. PACKING LIST

Please check the parts and components according to the packing list. If there are any parts missing, please contact us at sales@cytron.com.my immediately.

1. 1 x SHIELD-2AMOTOR
2. 5 x mini jumper

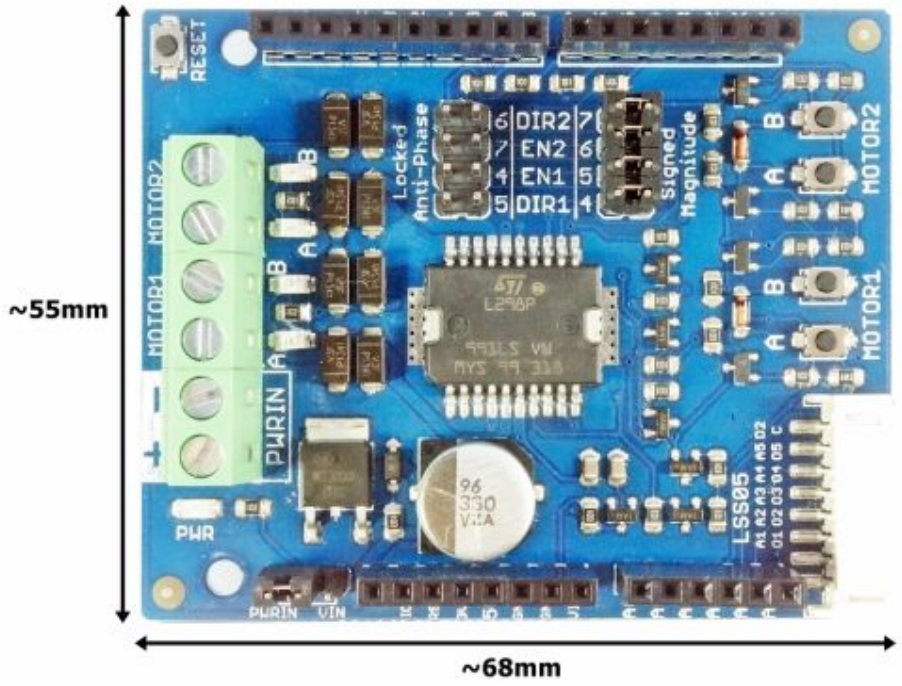
3. PRODUCT SPECIFICATION AND LIMITATIONS

Absolute Maximum Rating

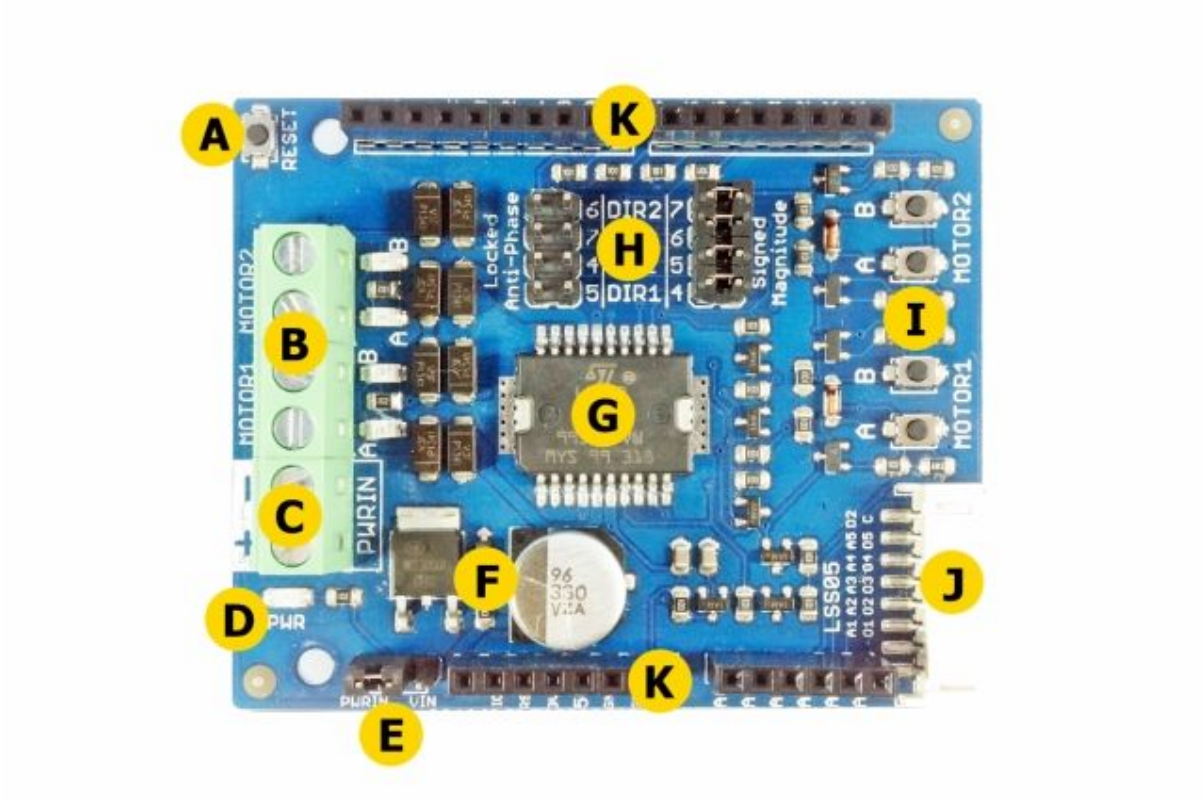
Parameter	Min	Typical	Max	Unit
Power Input Voltage (Motor supply voltage)	5	-	26	V
I_{MAX} (Maximum Continuous Motor Current)	-	-	2	A
I_{PEAK} (Peak Motor Current)	-	-	2	A
V_{IOH} (Logic Input-High Level)	3.3	-	5.5	V
V_{IOL} (Logic Input - Low Level)	0	0	0.5	V
Maximum PWM Frequency	-	-	10	KHz

Must not exceed 10 seconds

4. DIMENSION



5. BOARD LAYOUT



Label	Function
A	Reset button for Arduino main board
B	Motor connectors.
C	External power (PWRIN) connector.
D	PWR LED.
E	Power source selection.
F	External power (PWRIN) reverse polarity protection circuit.
G	L298P driver motor IC.
H	Motor control mode selection.
I	Test switch.
J	LSS05 connector.
K	Arduino pinout.

Reset button
User can press this button to restart Arduino program.

Motor connectors
Connect DC motor here.

External power (PWRIN) connector
Connect external power source here.

PWR LED
Motor power indicator.

Power source selection.
User can choose power source either from external (PWRIN) or internal (VIN).

External power (PWRIN) reverse polarity protection circuit.
In case user wrongly connect the external power source polarity, this circuit will protect the shield from broken.

L298P driver motor IC.
SHIELD-2AMOTOR uses L298P driver motor IC.

Motor control mode selection.
User can choose motor control mode either **Signed Magnitude** or **Locked Anti-Phase**.

Test switch.
When button A is pressed, current flows from output A to B and motor will turn CW (or CCW depending on the connection).
When button B is pressed, current flows from output B to A and motor will turn CCW (or CW depending on the connection).

LSS05 connector.
LSS05 can connect directly to this shield and can be interfaced with Arduino.

Arduino pinout.
Other Arduino shield can be stacked on top of this shield.

6. HARDWARE

This section shows the example of using SHIELD-2AMOTOR with Arduino Uno as the main controller to control dual brush DC motor. However, other Arduino main board controller can be used (Leonardo, Mega, Due).

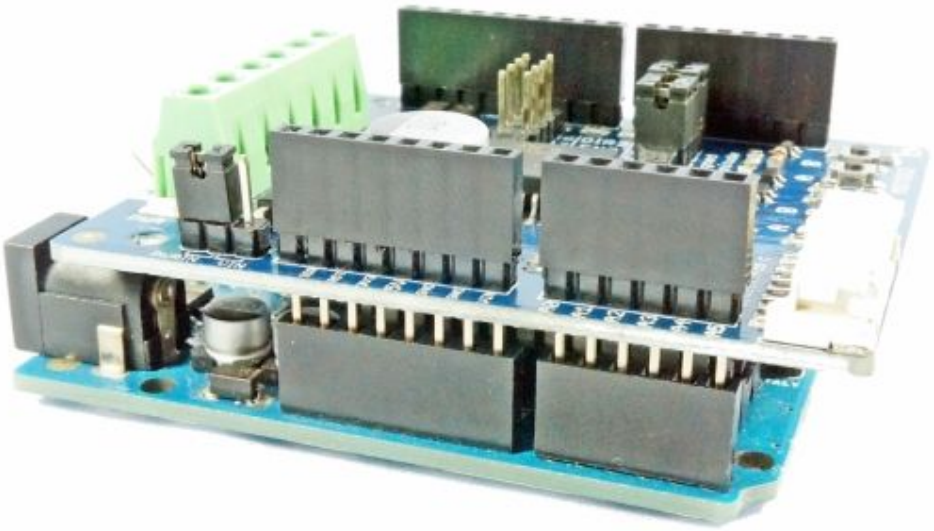
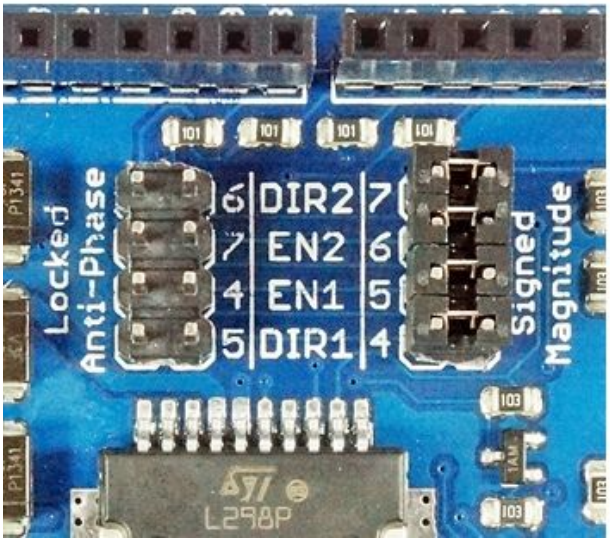
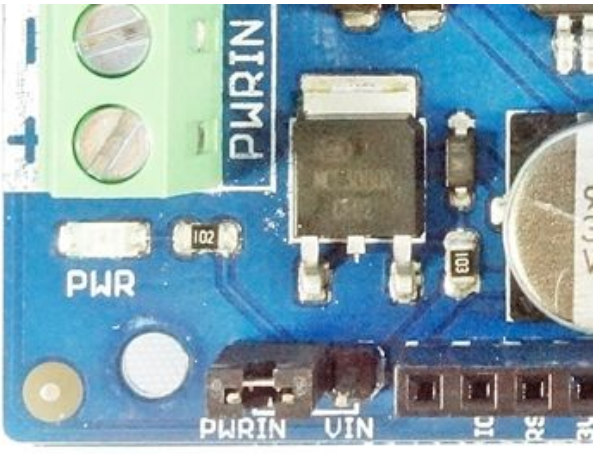


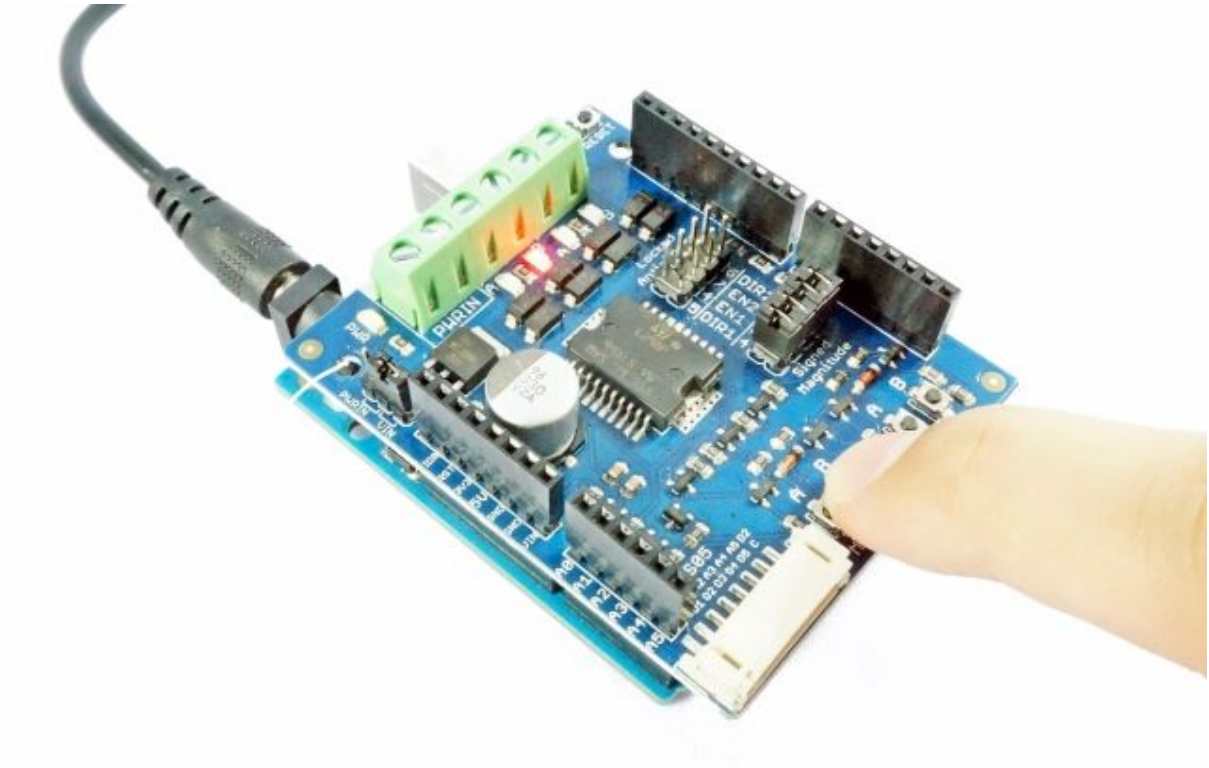
Figure above shows that SHIELD-2AMOTOR is stacked on the Arduino UNO.

Move 4 mini jumpers to Signed Magnitude or Locked Anti-Phase. The default setting is Signed Magnitude. Make sure correct power source is selected (VIN or PWRIN). VIN will connect to the Arduino power source, while PWRIN needs external power source connected to the PWRIN terminal.

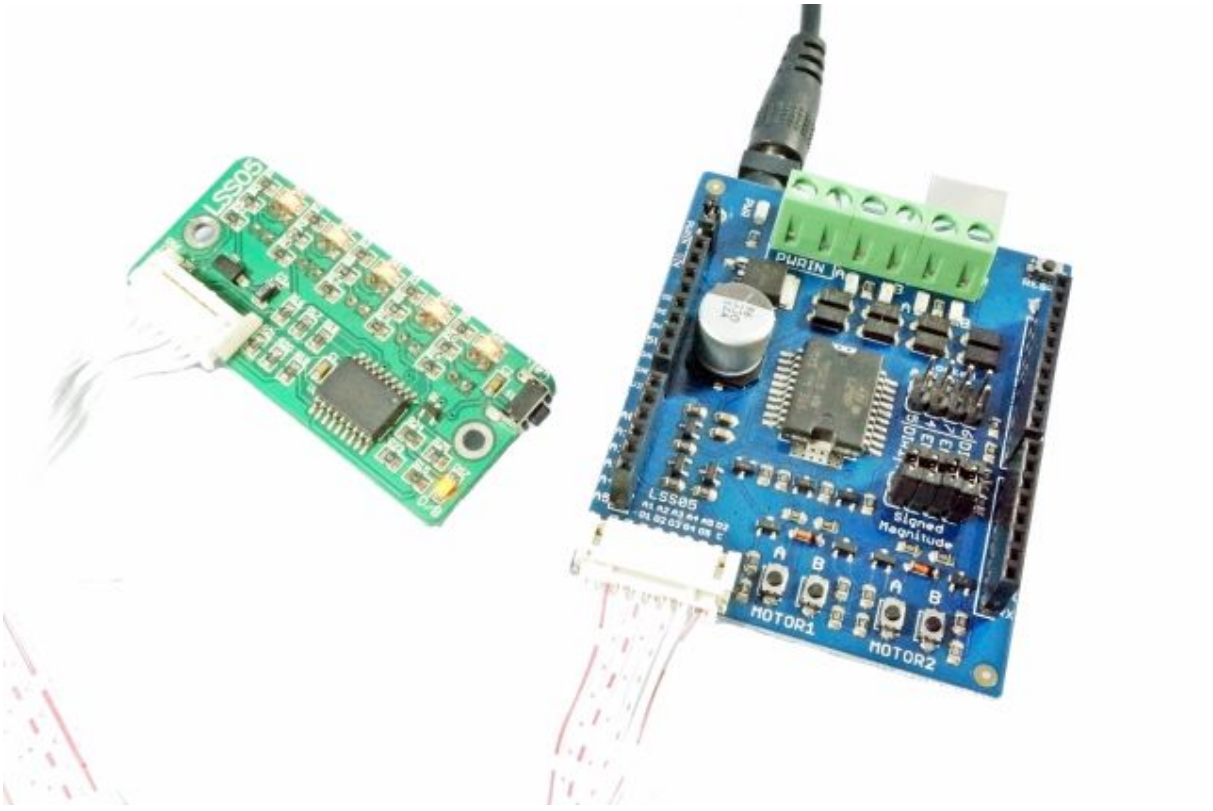




Connect motor to the MOTOR1 and MOTOR2 terminal block. Upload SHIELD-2AMOTOR example code to Arduino. Or you can test directly by using test switch.



SHIELD-2AMOTOR also include with LSS05 connector. Means you can plug in LSS05 directly to Arduino.



6.1 MOTOR CONTROL PIN

Choose either Locked Anti-Phase or Signed Magnitude mode by moving the 4 mini jumpers on shield. Below is a table to summarize pin used for motor control.

	Locked Anti-Phase (Arduino Pin)	**Signed Magnitude (Arduino Pin)**
DIR 2	6	7
EN 2	7	6
EN 1	4	5
DIR 1	5	4

6.2 LSS05 PIN

LSS05 can connect directly to this shield and can be interfaced with Arduino. Below is a table showing the pins connection between LSS05 and Arduino on 2A motor driver shield.

Arduino Pin	LSS05 Output Pin
5V	5V
GND	GND
A1	01
A2	02
A3	03
A4	04
A5	05
D8	Cal

7. SOFTWARE

Arduino library and example code can be downloaded from the SHIELD-2AMOTOR product page at Cytron's website.

8. WARRANTY

- Product warranty is valid for 12 months.
- Warranty only applies to manufacturing defect.
- Damaged caused by misuse is not covered under warranty
- Warranty does not cover freight cost for both ways.

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